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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,100	04/25/2001	Douglas Sojourner	10991096-1	6956

7590 04/07/2003

AGILENT TECHNOLOGIES
Legal Department, 51U-PD
Intellectual Property Administration
P.O. Box 58043
Santa Clara, CA 95052-8043

EXAMINER

DI GRAZIO, JEANNE A

ART UNIT PAPER NUMBER

2871

DATE MAILED: 04/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/842,100

Applicant(s)

SOJOURNER ET AL.

Examiner

Jeanne A. Di Grazio

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This rejection is in response to Applicant's arguments presented in Amendment of January 10, 2003.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

I. Independent Claim 1: Applicant has amended independent claim 1 to read a plurality of holes in a substrate wherein each of the plurality of holes corresponds to one of the plurality of lcnds ... liquid crystal caused to flow through the plurality of holes and to fill spaces within said plurality of lcnds and sealing the plurality of holes.

Claim1 had been rejected under 35 U.S.C. 103(a) as being unpatentable over Takiar (US '288 B1) in view of Kitamura Hiroya (JP-10-260415).

The rejection to claim 1 under 103(a) as unpatentable over Takiar in view of Kitamura Hiroya is withdrawn.

Claim1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto (US '436 B1) in view of Applicant's Prior Art Figure 1.

Per claim 1: Matsumoto has a device for supplying sealing material for sealing a plurality of liquid crystal injection holes of sealing areas of a multiplicity of liquid crystal cells simultaneously. Matsumoto has: a plurality of holes in a substrate (Figure 1 and Col. 5, Lines 56-58). Matsumoto has a liquid crystal hole of each one of a multiplicity of liquid crystal cells

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where liquid crystal injection has been completed (Col. 5; Lines 11-13). The liquid crystal fills spaces within the panels. Matsumoto has sealing for the plurality of holes (Col. 5, Lines 56-58). Matsumoto does not appear to specify that the apparatus is for micro displays; however, Matsumoto has a device for a plurality of holes in a substrate for the purpose of manufacturing multiple liquid crystal panels. Applicant's Prior Art Figure 1 furthermore illustrates a plurality of holes corresponding to a plurality of lcdms. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Matsumoto for the manufacture of multiple micro displays to increase productivity of liquid crystal panels, to manufacture liquid crystal panels in lot units, and to decrease processing time (Matsumoto at Col. 1, Lines 55-67). Matsumoto furthermore notes that the same suggestion, reason, and motivation applies to the sealing of liquid crystal injection holes: "it is better to seal the liquid crystal holes in units of a large number of liquid crystal cells" (Col. 1, Lines 62-63) to reduce processing time.

II. Dependent claims 2, 3, and 8: Dependent claims 2, 3, and 8 have been amended to include a plurality of lcdms and plurality of holes and testing the lcdms after sealing the plurality of holes and separating the plurality of lcdms from each other after testing the plurality of lcdms.

Claims 2 and 3 and 8 had been rejected under 35 U.S.C. 103(a) as being unpatentable over Takiar (US '288 B1) in view of Kitamura Hiroya (JP-10-260415).

The rejection to claims 2 and 3 and 8 under 103(a) as unpatentable over Takiar in view of Kitamura Hiroya is withdrawn.

Claims 2 and 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto (US '436 B1) and Applicant's Prior Art Figure 1 in further view of Takiar (US '288 B1).

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Per claims 2 and 3: Matsumoto does not appear to have the step of testing a plurality of lcnds after sealing a plurality of holes and then separating the plurality of lcnds from each other after testing the plurality of lcnds; however, Takiar has the steps of testing a plurality of chip scale packages while they are physically attached to each other and then after each chip is tested each chip is then singulated (Col. 2, Lines 41-45). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Matsumoto in view of Takiar to apply the method to lcnds in order to eliminate the need to mount or support each lcnd for testing which tends to slow down the automation process. Thus, as noted in Takiar, testing prior to cutting / separating of individual units streamlines the production process thereby improving yield while reducing cost.

Per claim 8: Claim 8 recites as amended sealing a plurality of holes and this has been addressed with respect to independent claim 1 above.

III. Independent claim 9: Independent claim 9 has been amended to include a plurality of lcnds and testing the plurality of lcnds while they are connected to each other and to a connection for conducting a test signal and the separating the plurality of lcnds from each other after the testing.

Claim 9 had been rejected under 35 U.S.C. 103(a) as being unpatentable over Takiar (US '288 B1) in view of Kitamura Hiroya (JP-10-260415).

The rejection of claim 9 under 103(a) as unpatentable over Takiar in view of Kitamura Hiroya is withdrawn.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto (US '436 B1) and Applicant's Prior Art Figure 1 in view of Takiar (US '288 B1).

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Per claim 9: As discussed previously, Takiar has the step of testing a plurality of chip scale packages while they are physically still connected to each other. Applicant's attention is respectfully drawn to Column 5, Lines 44-50 in Takiar which notes that "[t]his allows all of the packages assembled on the panel to be easily and accurately tested using a test head." (Referring to Figure 2F Ref. Item 116). The test head is used most likely to act as a means for conducting a test signal to be sure that each individual unit is properly working. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Matsumoto in view of Takiar as applied to lcnds to streamline the production process as noted.

IV. Independent claims 10 and 13: Independent claim 10 has been amended to include each of a plurality of lcnds. Claim 13 has been amended to include each of the plurality of lcnds produces a uniform image.

Claim 10 had been rejected under 35 U.S.C. 103(a) as being unpatentable over Takiar (US '288 B1) in view of Kitamura Hiroya (JP-10-260415).

The rejection to claim 10 under 103(a) as unpatentable over Takiar in view of Kitamura Hiroya is withdrawn.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto (US '436 B1) and Prior Art Figure 1 in view of Takiar (US '288 B1).

Per claim 10: Claim 10 recites a plurality of lcnds and this has been addressed previously.

Claim 13 had been rejected under 35 U.S.C. 103(a) as being unpatentable over Takiar (US '288 B1) in view of Kitamura Hiroya (JP-10-260415).

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The rejection to claim 13 under 103(a) as unpatentable over Takiar in view of Kitamura Hiroya is withdrawn.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto (US '436 B1) and Applicant's Prior Art Figure 1 in view of Takiar (US '288 B1).

Per claim 13: Applicant has amended claim 13 to read that each of the plurality of lcnds produces a uniform image; however, as noted, (First Office Action at Page 4), it would have been obvious to one of ordinary skill in the art at the time the invention was made to have each lcnd produce a uniform image because uniformity of image is paramount to liquid crystal displays. Akin to the testing of chip scale packages, it would be necessary to make sure that each lcnd produces a uniform image before being separated.

V. Independent claim 14: Independent claim 14 has been rewritten to include a plurality of sealed holes ... wherein each of the plurality of sealed holes corresponds to one of a plurality of lcnds; and liquid crystal material that is located between the first substrate and the second substrate, and within the plurality of lcnds.

Claim14 had been rejected under 35 U.S.C. 103(a) as being unpatentable over Takiar (US '288 B1) in view of Kitamura Hiroya (JP-10-260415).

The rejection to claim 14 under 103(a) as unpatentable over Takiar in view of Kitamura Hiroya is withdrawn.

Claim14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto (US '436 B1) in view of Applicant's Prior Art Figure 1.

Per claim 14: Matsumoto has a plurality of sealed holes wherein each of the plurality of sealed holes corresponds to one of a plurality of liquid crystal panels and liquid crystal material

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located between substrates within the plurality of liquid crystal panels (Col. 1, Lines 56-67).

Matsumoto does not specify lcnds; however, Prior Art Figure 1 has a plurality of lcnds as noted. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Matsumoto in view of Prior Art Figure 1 to have a plurality of sealed holes corresponding to a large number of lcnds to improve the production process as noted in Matsumoto.

VI. Dependent Claims 15-18: Dependent claims 15-18 have been amended to include a plurality of sealed holes used for filling the plurality of lcnds with liquid crystal material prior to the plurality of sealed holes being sealed and an assembly and each of the plurality of lcnds comprises a portion of the first substrate, a portion of the second substrate, and a portion of the liquid crystal material.

Claims 15-18 had been rejected under 35 U.S.C. 103(a) as being unpatentable over Takiar (US '288 B1) in view of Kitamura Hiroya (JP-10-260415).

The rejection to claims 15-18 under 103(a) as unpatentable over Takiar in view of Kitamura Hiroya is withdrawn.

Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto (US '436 B1) in view of Prior Art Figure 1.

Per claims 15-18: Matsumoto has an assembly of panels (See Figure 1) and in Matsumoto the sealed holes were used for filling the plurality of liquid crystal panels prior to the holes being sealed (Col. 2, Lines 32-38). Matsumoto does not appear to specify lcnds; however, Applicant's Prior Art Figure 1 has a plurality of lcnds. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Matsumoto in view of Prior Art Figure 1 for

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a plurality of lcnds to streamline the production process of lcnds and to decrease the production time as noted in Matsumoto (Col. 1, Lines 55-67).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (703)305-7009. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-8741 for regular communications and (703)746-8741 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Jeanne Andrea Di Grazio

Robert Kim, SPE

JDG

March 27, 2003


TOANTON for SPE
PRIMARY EXAMINER